

What is claimed is:

1. A method of heating a wafer comprising the steps of:
 generating heat to be supplied to the wafer;
 transferring the heat to a liquid component of fluid heat transfer medium in an amount sufficient to evaporate the liquid and thereby produce a vapor;
 transferring heat from the vapor of the fluid medium to a solid heat transfer medium, whereby the vapor is condensed back into a liquid phase; and
 supporting the wafer on the solid heat transfer medium so that the wafer is heated with the heat which has been transferred from the vapor of the fluid heat transfer medium to the solid heat transfer medium.

2. The wafer heating method of claim 1, wherein said step of transferring heat from the vapor of the fluid heat transfer medium to the solid heat transfer medium comprises transferring the heat directly to the solid heat transfer medium from a plurality of discrete separated areas located below the solid heat transfer medium.

3. The wafer heating method of claim 1, wherein said step of transferring heat from the vapor of the fluid heat transfer medium to the solid heat transfer medium comprises directing the fluid heat transfer medium toward the solid heat transfer medium using capillary action.

1 4. The wafer heating method of claim 2, wherein said step of transferring
2 heat from the vapor of the fluid heat transfer medium to the solid heat transfer medium
3 comprises directing the fluid medium toward the solid heat transfer medium using
4 capillary action.

1 5. The wafer heating method of claim 1, wherein said step of transferring
2 heat from the vapor of the fluid heat transfer medium to the solid heat transfer medium
3 comprises circulating the fluid heat transfer medium along at least one closed loop
4 path located adjacent the solid heat transfer medium.

1 6. The wafer heating method of claim 1, wherein the solid heat transfer
2 medium is heated substantially only by radiant heat derived from the vapor of the fluid
3 heat transfer medium.

1 7. The wafer heating method of claim 1, and further comprising a step of
2 transferring a portion of heat from said heat source to said solid heat transfer medium
3 by conduction.

8. Wafer heating apparatus comprising:

a heat source;

a solid medium on which a wafer is to be supported; and

a fluid heat transfer medium contained in an enclosed space located between

said solid heat transfer medium and said heat source, whereby heating of a liquid

component of the fluid medium by heat from said heat source evaporates the fluid

heat transfer medium, and resultant vapor of the fluid heat transfer medium is

condensed by the transferring of heat to the solid heat transfer medium.

9. The wafer heating apparatus of claim 8, wherein said enclosed space comprises a plurality of discrete separated areas, and said fluid heat transfer medium occupies each of said discrete areas.

10. The wafer heating apparatus of claim 9, and further comprising a lattice having a plurality of partitions delimiting said discrete areas.

11. The wafer heating apparatus of claim 9, wherein said heat source comprises a heater block, and at least one of an upper surface of said heater block and a lower surface of said solid heat transfer medium has a plurality of discrete grooves therein, said grooves constituting said discrete areas.

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1 12. The wafer heating apparatus of claim 10, and further comprising a
2 refractory porous body contacting said heat source within each of said discrete areas
3 separated from one another by the partitions of said lattice, said fluid heat transfer
4 medium occupying cavities of said refractory porous body.

1 13. The wafer heating apparatus of claim 8, and further comprising a
2 refractory porous body interposed between said solid heat transfer medium and said
3 heat source, said fluid heat transfer medium occupying cavities of said refractory
4 porous body.

1 14. The wafer heating apparatus of claim 13, wherein only a single unitary
2 refractory porous body is interposed between said solid heat transfer medium and said
3 heat source.

1 15. The wafer heating apparatus of claim 13, wherein said porous body
2 adheres to at least one of respective surfaces of said heat source and said solid heat
3 transfer medium which face toward one another.

1 16. The wafer heating apparatus of claim 8, wherein said heat source
2 comprises a heater block having an upper surface facing towards a lower surface of
3 said solid heat transfer medium, and at least one of said upper surface of the heater

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4 block and said lower surface of the solid heat transfer medium define at least one
5 groove, the fluid heat medium being contained in said at least one groove.

1 17. The wafer heating apparatus of claim 16, wherein said at least one
2 groove consists of a single groove in the shape of a closed loop.

1 18. The wafer heating apparatus of claim 16, wherein said at least one
2 groove comprises a plurality of discrete grooves separated from one another.

1 19. The wafer heating apparatus of claim 16, and further comprising a
2 tubular body disposed in each said at least one groove, the fluid heat transfer medium
3 being disposed in said tubular body.

1 20. The wafer heating apparatus of claim 19, wherein said tubular body has
2 a plurality of internal fins contacting said fluid heat transfer medium.

1 21. The wafer heating apparatus of claim 16, wherein one of said upper
2 surface of the heater block and said lower surface of the solid heat transfer medium
3 has a plurality of walls between which said grooves are defined, said walls contacting
4 the other of said upper surface of the heater block and said lower surface of the solid
5 heat transfer medium.

1 22. The wafer heating apparatus of claim 21, wherein each of said walls has
2 a triangular profile, a vertex of each of said walls contacting said other of the upper
3 surface of the heater block and the lower surface of the solid heat transfer medium.

1 23. The wafer heating apparatus of claim 8, wherein said enclosed space is
2 delimited by said solid heat transfer medium, whereby the vapor of the fluid heat
3 transfer medium is allowed to contact the solid heat transfer medium directly.

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